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AUTHOR Frazer, Gregory H.; And Others
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ABSTRACT

This study sought to identify the most important, unanswered research questions in health education. Respondents consisted of 21 health educators selected by a panel of experts. The research methodology employed was a three round Delphi technique in which participants were asked to identify five significant research questions in health education in the first round, and consequently rate those questions in rounds 2 and 3. The questions were then rated on the Likert scales of Importance, Desirability, and Feasibility. The question rated highest on the scale of Importance and Desirability was: "What are the critical factors which enhance or detract from successful implementation and maintenance of health education programs in schools and communities and do they change over time?" Highest on the Feasibility scale was: "What outcomes can we realistically expect school health education to achieve at the various stages of development (K-12)?" The areas which seemed most pertinent to future health education research included defining parameters of health education, quality of professional preparation, ethics of behavioral change strategies, evaluation and efficacy of health education, and methodology of health education. Tables are appended on the ranking of the 47 important unanswered research questions identified in the study, and on the 10 highest and lowest rated questions. (Author/JD)

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Unanswered Research Questions in Health Education: A Delphi Study

Gregory H. Frazer, PhD
Assistant Professor
Department of Health and Safety
Indiana State University
Terre Haute, IN 47809

Robert Kush, MS
Doctoral Student
Department of Health Education
Southern Illinois University
Carbondale, IL 62901

Charles E. Richardson, EdD
Professor
School of Medicine
Department of Health Education
Southern Illinois University
Carbondale, IL 62901

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ABSTRACT

Unanswered Research Questions in Health Education: A Delphi Study.
Gregory H. Frazer, Ph.D.; Robert Kush, M.S.; Charles E. Richardson, Ed.D.
Health & Safety Department, Indiana State University, Terre Haute, IN;
Health Education Department, Southern Illinois University, Carbondale, IL.

Purpose: This study sought to identify the most important, unanswered research questions in health education. A discussion exists within the literature concerning the definition of health education as a "quasi-academic unit" or as a profession which is an intregal part of the health maintenance system. Identification of the major areas of future investigation will provide an indication of the level of sophistication and scope of health education as a discipline.

Methods: The study respondents consisted of 21 health educators identified by a panel of experts as significant contributors to the field of health education. The research methodology employed in the study was a 3 round Delphi technique in which respondents were asked to identify 5 significant research questions in health education in the first round and consequently rate those questions in rounds 2 and 3. Those questions were then rated on the Likert scales of Importance, Desirability, and Feasibility as identified by Linstone and Turoff.

Data and Findings: A total of 59 questions were identified with the 12 lowest rated questions discarded because of their minimal evaluative impact. The mean ratings generated in rounds 2 and 3 thus identified one question as ranking highest on the scales of Importance and Desirability: "What are the critical factors which enhance or detract from successful implementation and maintenance of health education programs in schools and communities and do they change over time?" The question rating highest on the Feasibility scale was: "What outcomes can we realistically expect school health education to achieve at the various stages of development (K-12)?" The areas which seemed most pertinent to future health education research included defining the parameters of health education, the quality of professional preparation, the ethics of behavioral change strategies, the evaluation and efficacy in health education, and the methodology of health education. A Spearman Rank Correlation Coefficient, comparing the ratings on rounds 2 and 3 for each scale, produced a mean coefficient of .87 for Importance, .76 for Desirability, and .57 for Feasibility. Pooled variance t-Test, utilized to compare ratings on the respective scales, identified 2 comparisons as significantly different ($p<.05$). The response rate for the study was 85.7% (N=18) in the first round, 71.4% (N=15) in the second round, and 61.9% (N=13) for the third round.

Conclusions: The review of the 47 research questions indicated a broad range of subject areas and sophistication to be employed in future health education research. The data implies that the questions most relevant to health education research seem to be multivariate, complex topical areas which do not lend themselves toward "pure" research. It is apparent from this study that before the future of health education is decided, the critical underlying issues of the process must be explored and documented.

Introduction

Nearly two decades ago, Veenker (1965) conducted a systematic review of selected research periodicals in health education and concluded that the field lacked systematically organized research programs and, that health educators had failed to establish a written conceptual framework to guide future research. In 1981, Wiist conducted a trends study of the major health education journals and drew similar conclusions, noting that while research-oriented studies were increasingly being published, less than one-fourth of the articles in the journals he selected were found to focus on research questions or to utilize empirical investigative techniques. In 1982, Frazer analyzed articles from the seven most frequently read journals in health education, (the full output of these journals for 1980 and 1981), and categorized slightly over half of the articles as "research articles." However, he noted that only five of these articles so classified met the criteria of "experimentally designed" and the descriptor "quasi-experimental" could be applied only to 121 of the remaining articles.

These reports suggest that we as health educators are being confronted by some rather persistent and nagging questions: Why does our literature seemingly lack a research emphasis? And, what are the research questions that we in the profession should be tackling? It was these questions, particularly the latter, that prompted us to conduct this study.

Purpose

Succinctly stated, we sought to ask an expert panel of our professional colleagues what our most pressing research questions were and to do so in a systematic manner allowing for maximum feedback of the deliberations of the panel, permitting for response refinement as well as providing for the quantification of results after repeated judgments.

Methods

Panel Selection. -- Our first step in the conduct of the study was to ask the five senior faculty members of the Department of Health Education, Southern Illinois University, to select from a comprehensive listing of "well-known" professional health educators, those individuals who best fit the following criteria: (a) scholarship; (b) extensive publication records; (c) professional attainment; and, (d) overall contributions to the field. From this listing a pool of twenty-one individuals were named, (each receiving more than three nominations), to constitute the expert panel.

The Delphi Technique -- To conduct our survey, we used a modified Delphi technique which required three-rounds of contact from our panel members and elicited unstructured as well as structured responses.

The Delphi Technique may be generally characterized as a method for "semi-structuring" a communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem (Linstone & Turoff, 1975, p.3). To accomplish this goal, four conditions must be met: 1) feedback of individual contributions of the information and knowledge; 2) assessment of group judgments; 3) opportunities to revise individual judgments; and, 4) some degree of anonymity for individual responses.

Originally developed in the 1950's by the Rand Corporation for the purpose of securing a reliable concensus of expert opinion (Dalkey & Helmer, 1963), the technique is mostly used now for technological forecasting, industrial research and development, planning, technological evaluation, and educational decision-making. (Brown, 1969; Crowley & Johnson, 1977; Cyphert & Grant, 1970; Dalkey, 1969; Emmons & Kaplan, 1970; Gordon, 1971; Sackman, 1974; Strauss & Ziegler, 1975; Travis, 1976; and Weaver, 1972). The Delphi process is especially useful in situations where the problem does not lend itself to

precise analysis but where a collective, subjective judgement can provide a contribution to professional development within an educational field. Further, this process allows for individual contribution without costly, time consuming face-to-face interaction, a necessary requisite for many denizens of higher education.

Although the Delphi technique possesses many positive attributes which reduce cost, time, and sampling problems, the investigators submit that there are major shortcomings of the method. Linstone and Turoff (1975) cite these common pitfalls in application:

1. In using the approach, we may impose monitor views and preconceptions of a problem upon the structure of the Delphi and not allow for the contribution of other perspectives related to the problem we are researching.

2. We tend, sometimes, to assume that Delphi can be a surrogate for all other human communications in a given situation.

3. We may employ confusing summaries in presenting group responses (feedback) and secure artifically common interpretations of the group evaluations.

4. We may tend to ignore disagreements thereby causing discouraged dissenters to drop out and thus further generate an artificial concensus.

Sackman (1974) and Emmons (1970) also suggest in association with the aforementioned problems, that the technique's concept of an expert is not well defined and that a panel selection process is usually highly subjective. Also, they contend that the technique discourages adversary opinions and that anonymity reinforces unaccountability.

Nevertheless, the reliability of the Delphi technique is respectable as reflected in Kappa coefficients ranging from .63 to 1.00 at the .05 level of confidence (Dalkey, 1972; Helmer, 1968; and Dagnais, 1978) from utilizing even heterogeneous groups such as college students, lay volunteers, and college professors. It is found further that panel reliability increases significantly as panel size increases. Too, Cyphert and Gant (1971) have indicated that the

procedure is valid with as few as three rounds in the protocol; in fact, their data indicate that few statistically significant changes occur between ratings after the second rating (third round).

The Delphi technique was thereby chosen for utilization in this study because it afforded the respondents an opportunity to convey their perceptions of problem/research areas in health education without restriction. It also allowed for a greater sample size because of lessened cost and time restrictions. Too, the technique allowed for the generation of personal imperatives and opinions which might contribute to the development of research hypotheses. And, since there are no definitive predictions generated via the Delphi, there are no "hard" numbers to interpret. We hoped, further, that the technique would allow for if not provoke innovative thinking without constraint and promulgate a forum for discussion on the future of health education.

Procedures

Round one -- Each panel member was mailed a packet containing an explanatory letter requesting participation in the three-round Delphi study and a return mailer containing a response sheet headed by this statement: "Please list what you consider to be the most critical research question(s) facing the field of Health Education today." Space for listing as many as five questions was provided on the "unstructured" response sheet. Anonymity was assured. Eighteen panelists responded specifying forty-seven research questions (a total of 59 questions were identified with the 12 lowest rated questions discarded because of their minimal evaluative impact).

In preparing for the second contact with our expert panelists, the investigators grouped the 47 research questions under the following rubrics: (a) health education as a professional field; (b) the health educators; (c) health education programs; (d) methodology in health education; and (e) out-

comes of health education. The agreed upon categorizations, though arbitrary, perhaps, were arrived at through logical sortings of the research questions by each investigator independent of the other. Grouping of the questions was done to allow panelists to submit further research questions by category that were deemed necessary to make the listing comprehensive. The research questions, stated in the respondents' words, were then formatted for review and ranking by the panel on five criterion factors -- comprehensiveness, clarity, importance, desirability and feasibility. These five factors have been discussed extensively in Delphi "literature" (Brown, Cyphert, Dalkey, etc.) and were considered by these investigators to contain the most cogent parameters for expert judgments.

On the factors of comprehensiveness and clarity, we provided for subjective, unstructured responses from our panelists by requesting comments on each research question and also asked that new research questions be written in any of the "subject" categories should the panelists so desire. On the factors of importance, desirability and feasibility, we developed a structured response format by adapting criteria from Linstone and Turoff (1975). The respondents were asked to assign three scores to each research question. In essence, we were seeking from each panelist a quantification of three judgments: (a) How <u>important</u> is this research question? (b) How <u>feasible</u> is this question in terms of "researchability"? and (c) How <u>desirable</u> or beneficial would it be to pursue this research question? Scoring instructions are shown in exhibits 1,2, and 3.

<u>Round two</u> -- The second mailing to the pool of experts yielded fifteen returns. Mean ratings on the Importance, Desirability and Feasibility scales were ascertained and on this basis, each research question was assigned a ranking of one through forty-seven on each of the factors -- Importance, Desirability and Feasibility. In addition, returns were reviewed for written

comments as well as for "write-ins" of additional research questions. Panelists tended to comment only sparingly on the questions, making few editorial changes and did not add any questions to the original listing.

Since the main feature of the Delphi Technique is to provide "feedback" to each expert panelist as to the judgments of the panel as a whole and thereby to derive concensus, our next task was to restructure our instrument to display the quantified information for final mailing. We utilized the format of the second-round instrument, essentially, depicted mean "factor" scores for each question, and asked the panelists to assign new scores to each of the scales, (Importance, Feasibility and Desirability), attached to the 47 research question. In essence, the final contact with panelists asked: "Given this new information on how panelists as a whole ranked the research questions, what rankings will you reassign to the associated factors of Importance, Feasibility and Desirability?"

Round three -- The third contact with the panelists netted 13 returns and ended the Delphi study. The attrition rate over the eight month study was 38%. Included in the round three packet was a personal and professional data sheet which panelists were asked to complete. Summarized, these data reveal the following panel characteristics: Over 90% were affiliated with a university and had beyond sixteen years of professional experience; thirteen of the panelists held doctorates; and, as a whole, the panel members revealed that their academic concentrations were in school health alone (38.5%), community health alone (15.4%), and in school and community health combined (30.8%). Other concentations listed were evaluation and educational administration.

Findings

Table 1 displays the 47 research questions generated by the panel along with mean values of the scores assigned to each question on the factors of

Importance, Desirability and Feasibility during the successive Delphi rounds. Shown also are the combined rounds means and how the question ranked on the three criterion factors when means were combined.

From an overview of the Table, it would appear that the areas which panelists deem most pertinent to future health education research include defining the parameters of health education, explicating the quality of professional preparation, investigating the ethics of behavioral change strategies, focusing on the evaluation process and efficacy issues in health education, and determining a methodology for health education. It may be noted further that many of the questions deal with cause and effect issues yet reflect causal relationships that would be difficult if not impossible to uncover. Too, the questions contain multiple components for which adequate measurement instruments would need to be developed and would, at best, necessitate complex, statistical studies to "answer" the questions. Nevertheless, it is an outstanding array of broad research questions capable of involing hundreds of research hypotheses.

Insert Table 1

The ten highest rated questions overall (rounds 2 and 3 combined) on the factors of Importance, Feasibility and Desirability are shown in Table 2.

These questions address implementation and maintenance of successful health education programs primarily, along with issues connected with outcomes of health education programs, outcomes of specific education efforts, curricular strategies, and the evaluation of methods which would generate support for health education efforts. These questions seem to seek "basic" explorations concerning the need and efficacy of health education, questions and answers usually addressed in the "infancy" of academic disciplines.

The mean rating of these ten questions was 1.5 which indicated that a high overall priority was afforded these questions on the one to five scale continium when compared to all other questions generated.

Insert Table 2

The lowest rated 10 questions are shown in Table 3. Generally, these questions addressed the issues of health education evaluation, communication, professional orientation/philosophy, sex education, curricular theory, efficacy of information giving and behavioral change, per se. These questions appear to be, perhaps, the most vague and ambiguous of the questions generated. While the issues addressed are important in the realm of theory, it would appear that research concerning these questions would be difficult to develop and the variables tedious to measure. The overall mean rating of 2.63 reflected a relatively low ranking by the panelists on these items.

Insert Table 3

For the most part, panelists' ratings on the three factors were remarkably consistent, e.g., if a research question was rated as "important" or "very important," it also received high feasibility and desirability ratings. Only two questions that were judged to be in the top ten in Importance were not in the composite listing of the upper ten. These were:

> "What are the long term effects of health education as it relates to health/lifestyle for individuals exposed to health education programs in school and community settings?"
>
> and
>
> "What is an effective methodology in resisting peer group pressure as related to health behavior?"

It would appear that the addition of these questions to the composite grouping suggests a consistent concern on the panelists' part for evaluating long-term, positive outcomes of health education. Behavioral change assessments in both the school and community settings seem to be on the minds of our professional representatives in this study even from a cost-benefit analysis perspective.

High in "desirability" but less highly ranked in combined ratings were these questions:

> "Can theoretical models or theories be formulated by which to study the effects of health education?"
>
> and
>
> "What factors or strategies are most effective for influencing health behavior?"

Here, panel members seemed to desire ways and means to sort out the most strategic and economical paths to influence (change?) health behavior but mostly focused upon the "top ten" issues.

Conclusion

A review of the 47 research questions generated by our expert colleagues reveal a broad range of subject matter and research directions which may well be employed in future health education studies. Areas which seem most pertinent include defining the parameters of health education, assessing the quality of professional preparation, uncovering strategies for behavioral change, considering ethical determinents, evaluating health education efforts singly and in programatic forms, and in uncovering any "uniqueness" of health education methodology for research. Apparently, the questions most relevant to the health education field seem to consist of complex, intermingled issues which do not lend themselves to "pure," scientific investigations. Although it appears that the aforementioned areas of interest are of "importance" to the delimitation

of health education, the feasibility of such research in these areas is not always to be in the same magnitude of ranking seen by our colleagues. Additionally, a review of the health education literature reveals that many of the "study topics" indentified by this study are similar to those which have been postulated in professional journals during the past several decades. It appears that the research of health educators may well lack direction and focus and tends to address only contemporary health problems; not the broad questions that when answered would build a factual, knowledge base to our professional field.

One issue which tended to be ignored by our panel was the "place" of health education in relation to the health care delivery system. The cost of health care in the United States will approximate 322.8 billion in 1983 (Freeland and Schendler, 1981). Additionally, acute shortages of manpower and facilities will occur. Federal analysts have identified over 1100 regions in our country, with a total population of approximately 16 million people, which have critical shortages of primary care physicians (Wehr, 1979). In light of expenditures and need for health care, it would seem probable that health educators should secure prominent places in the procurement, delivery, and planning of all health care services. The concept of "wellness" programs would appear to have great applicability. If health educators are concerned with professional equity among the various health care providers, this situation presents ample opportunity for health educators to display their expertise. However, we must prove ourselves by asking and answering the "right" questions.

When judgements were summarized on the Feasibility factor alone, only one question would be added to the composite top ten:

> "How does health education fit into the broad spectrum of the top health care delivery system?"

In light of the expanding nature of the health care system in the United States, it does seem "feasible" that health educators be concerned with the profession's place among the various health service entities. It appears advantageous for health educators to become accepted "practitioners" in the broadest spectrum of services possible in order to ensure professional equality among all members of health care team.

Finally, what about rating changes on the criterion factors of Importance, Feasibility and Desirability between rounds? By applying pooled variance T-tests on the mean differences, we found most changes to be insignificant, e.g., differences less than the .05 alpha level or beyond.

On the Importance scale, only the question, "What is the effect of 'psychosomatic wellness' as compared to 'psychosomatic illness' in resisting health problems and maintaining functional physical and mental health levels?" was rated significantly different between rounds. On the Feasibility scale, only the question, "What are the programmatic and organizational variables that influence the implementation and maintenance of health education programs?" was rated significantly different between rounds. No question was rated significantly different between rounds on the Desirability scale.

How about stability of rankings between rounds on each criterion factor? We extracted Spearman Rank coefficients on each scaled factor between rounds and found Rhos of .87 on Importance, .76 on Desirability, and .57 on Feasibility. Thus, in general, we concluded that judgements of the panel members tended to be stable over time. Apparently, however, there was some variability in perception on the panelists' part as to the feasibility of researching certain questions even though to do so is important and desirable. We do not know whether or not this lesser degree of stability between rounds reflected a deliberate change in ratings because of "feedback" data from the group or

because the factor of feasibility itself tends to be given to an intrinsic conceptual varibility.

We were somewhat surprised that our panel did not address questions related to specific health initiatives identified in 1981-82 as national health problems, e.g., patient compliance, "unfitness", alcohol and drug abuse, accident prevention and "low level wellness". There was evidence, however, that our panelists felt that if we successfully mounted research programs to answer the more generic questions confronting our field, we would expend our efforts most profitably. And, we contend, that our panelists presented a good case for such courses of action.

Finally, we conclude that the Delphi technique is a most viable tool for research endeavors such as this. It is economical; it is productive; it stimulates rather than seeks closure; it is future rather than past oriented. Through this study, we have learned that before the future of health education is decided, critical underlying issues related to behavioral change processes must be explored and documented. Credibility and public acceptance are recognized to be the key ingredients in these processes. It is imperative that researchers seek to clarify and uncover the elements of the process before health educators can claim the process as their primary and exclusive domain.

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Table 1

The Most Important Unanswered
Research Questions in Health Education

A. HEALTH EDUCATION AS A PROFESSIONAL FIELD

1. How can health education establish itself as a profession?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.69	1.79	1.74	30
Desirability	1.92	1.73	1.83	36
Feasibility	2.15	2.48	2.32	27
			Mn=1.96	Mn=27.7

2. What are the parameters (limits) of health education (practice)?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	2.08	2.26	2.17	43
Desirability	2.00	2.17	2.09	41
Feasibility	2.25	2.75	2.50	26
			Mn=2.25	Mn=36.6

3. Can theoretical model or theory be formulated by which to study the effects of health education?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.31	1.69	1.50	17
Desirability	1.08	1.67	1.38	9
Feasibility	2.31	2.50	2.41	32
			Mn=1.76	Mn=19.3

4. How can health educators effectively market health promoting behaviors?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.58	1.58	1.58	24
Desirability	1.66	1.57	1.62	23
Feasibility	2.18	2.28	2.23	22
			Mn=1.81	Mn=23.0

5. How can process and content be taught at the same time in health education professional preparation courses?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	2.08	2.27	2.18	44
Desirability	2.00	2.17	2.09	41
Feasibility	2.36	1.92	2.14	18
			Mn=2.14	Mn=34.3

6. Do health education professional preparation programs adequately prepare people to enter and be successful in the health education profession?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.46	1.57	1.52	21
Desirability	1.46	1.74	1.60	21
Feasibility	1.69	2.25	1.97	11
			Mn=1.70	Mn=17.7

7. How can entry level health educators reliably be tested for basic competency?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.69	1.90	1.80	36
Desirability	1.69	1.64	1.67	28
Feasibility	2.07	1.98	2.03	15
			Mn=1.83	Mn=26.3

8. Do basic differences in preparation and competency exist between health education graduates from schools of public health and graduates from other schools?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	2.31	2.53	2.42	46
Desirability	2.31	2.70	2.51	47
Feasibility	2.38	2.25	2.32	27
			Mn=2.42	Mn=40.0

9. How can health education become a more important part of the community and school curriculum?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.42	1.20	1.31	9
Desirability	1.42	1.37	1.40	11
Feasibility	1.75	1.81	1.78	2
			Mn=1.50	Mn=7.3

10. How does health education fit into the broad spectrum of the health care delivery system?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.75	1.47	1.61	25
Desirability	1.66	1.38	1.52	17
Feasibility	2.00	1.92	1.96	9
			Mn=1.70	Mn=17.0

11. What is the validity of the various health behavior models?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.73	1.81	1.77	33
Desirability	1.27	1.68	1.47	16
Feasibility	2.09	2.59	2.34	29
			Mn=1.86	Mn=26.0

B. THE HEALTH EDUCATOR

12. What are the innate characteristics (personal) which enhance the person's ability to be a successful health educator?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	2.08	2.25	2.15	42
Desirability	2.17	2.17	2.17	44
Feasibility	2.75	2.89	2.82	46
			Mn=2.38	Mn=44.0

13. How do various motivational factors, values, teacher preparation, teacher influence, instructional patterns, role models, peer influence and school environment influence health education program output?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.75	1.51	1.87	38
Desirability	1.83	1.61	1.72	32
Feasibility	2.75	1.58	2.17	20
			Mn=1.92	Mn=30.0

14. Is it ethical for a health educator to have behavior change as an active/sought objective of his/her teaching?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	2.27	1.82	2.05	41
Desirability	2.27	2.00	2.14	43
Feasibility	2.18	2.91	2.55	39
			Mn=2.25	Mn=41.0

15. Does the example health educators set have a measurable impact on how effective their educational programs are?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.92	1.80	1.86	37
Desirability	1.85	1.80	1.83	36
Feasibility	1.85	2.08	1.97	11
			Mn=1.89	Mn=28.0

HEALTH EDUCATION PROGRAMS

16. What are the critical factors which enhance or detract from successful implementation and maintenance of health education programs in schools and do they change over time?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.17	1.17	1.17	1
Desirability	1.17	1.26	1.22	1
Feasibility	1.58	1.97	1.78	2
			Mn=1.39	Mn=1.3

17. What are the most effective ways to implement health education programs?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	(Combined Rounds)	(Combined Means
Importance	1.31	1.27	1.29	6
Desirability	1.23	1.27	1.25	4
Feasibility	2.00	1.92	1.96	9
			Mn=1.50	Mn=6.3

18. What are the programmatic and organizational variables that influence the implementation and maintenance of health education programs?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.36	1.43	1.40	13
Desirability	1.36	1.44	1.40	11
Feasibility	1.55	2.13	1.84	4
			Mn=1.55	Mn=9.3

19. How can health education offset the risk-taking predispositions of adolescent youth and young adults that account for this age group having the only health rate that has increased in the past fifteen years?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.77	1.55	1.66	27
Desirability	1.69	1.55	1.62	23
Feasibility	2.77	2.73	2.75	45
			Mn=2.01	Mn=31.6

20. How can health education programs produce more preventive oriented children and adults?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.54	1.29	1.42	14
Desirability	1.69	1.38	1.54	18
Feasibility	2.31	2.79	2.55	39
			Mn=1.84	Mn=23.6

21. What are the effects of health education programs that strategically have been planned and implemented to address multiple psychological and environmental variables that influence a given health related action?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.50	1.53	1.52	21
Desirability	1.58	1.69	1.64	27
Feasibility	2.58	2.62	2.60	43
			Mn=1.92	Mn=30.3

22. How can the concept of comprehensive school health gain the support needed to adequately implement such programs in the nation's schools?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.25	1.13	1.19	3
Desirability	1.25	1.21	1.23	3
Feasibility	2.08	2.53	2.31	26
			Mn=1.58	Mn=10.7

23. What types of replication studies, if any, are needed to verify findings in different settings, with different populations and conducted by different investigators?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	2.08	2.00	2.04	40
Desirability	2.00	2.08	2.04	39
Feasibility	2.08	2.08	2.08	16
			Mn=2.05	Mn=31.7

24. What are the "precursor" measures beyond knowledge and attitudes that affect the success of programs?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.62	1.38	1.50	17
Desirability	1.46	1.38	1.42	13
Feasibility	2.15	2.43	2.29	24
			Mn=1.74	Mn=18.0

D. METHODOLOGY IN HEALTH EDUCATION

25. How much information, and in what detail, is needed to enable persons to make intelligent, informed choices affecting their health behaviors and states?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.85	1.73	1.79	34
Desirability	1.77	1.65	1.71	30
Feasibility	2.62	2.55	2.58	42
			Mn=2.03	Mn=35.3

26. How can we best measure our successes and failures in regard to the effectiveness of health education methods and programs?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.23	1.34	1.29	6
Desirability	1.31	1.34	1.33	7
Feasibility	1.85	2.09	1.97	11
			Mn=1.53	Mn=8.0

27. What are the critical psychosocial variables which result in the initiation or change in risk-taking behaviors in various populations and age groups?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.31	1.44	1.38	11
Desirability	1.54	1.69	1.62	23
Feasibility	2.07	2.73	2.40	31
			Mn=1.80	Mn=21.7

28. What is the optimum combination of educational methods to achieve specific outcomes for specific populations, especially those at highest risk?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.83	1.73	1.78	34
Desirability	1.67	1.82	1.75	33
Feasibility	2.42	2.71	2.57	41
			Mn=2.03	Mn=36.0

29. What factors or strategies are most effective for influencing health behavior?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.62	1.22	1.42	14
Desirability	1.54	1.22	1.38	9
Feasibility	2.07	2.25	2.16	19
			Mn=1.65	Mn=14.0

30. What is an effective methodology in resisting peer group pressure as related to health behavior?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.46	1.21	1.34	10
Desirability	1.54	1.29	1.42	13
Feasibility	2.00	2.00	2.00	14
			Mn=1.59	Mn=12.3

31. What amounts and kinds of reinforcement and over what periods of time following initial health education are necessary to support the maintenance of behavioral adaptations conducive to health?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.50	1.51	1.51	19
Desirability	1.70	1.55	1.62	23
Feasibility	2.20	2.27	2.24	23
			Mn=1.79	Mn=21.7

32. What are the best ways to convince schools and community leaders of the need for health education?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.33	1.19	1.26	5
Desirability	1.25	1.19	1.22	1
Feasibility	1.83	2.00	1.92	8
			Mn=1.47	Mn=4.7

33. How can health education be effectively interpreted to the public?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.54	1.47	1.51	20
Desirability	1.62	1.47	1.55	19
Feasibility	1.85	1.90	1.88	7
			Mn=1.65	Mn=15.3

34. Which statistical procedure(s) is (are) most useful for determining effectiveness of health education?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Mean
Importance	2.36	2.58	2.47	47
Desirability	2.36	2.58	2.47	46
Feasibility	2.00	2.33	2.17	20
			Mn=2.37	Mn=37.7

35. What standardized measures must be developed, if any, to assess behavior, heed intervention and measure behavioral outcomes and crucial variables such as attitudes and knowledge?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Mean
Importance	1.92	1.98	1.95	39
Desirability	2.08	2.07	2.08	40
Feasibility	2.17	2.43	2.30	24
			Mn=2.11	Mn=34.3

36. What is the effect of "psychosomatic wellness" as compared to "psychosomatic illness" in resisting health problems and maintaining functional physical and mental health levels?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Mean
Importance	1.92	2.66	2.29	45
Desirability	1.83	2.58	2.21	45
Feasibility	2.50	3.29	2.90	47
			Mn=2.47	Mn=45.7

E. OUTCOMES OF HEALTH EDUCATION

37. What are the relationships between health-promoting behavior and attitudes, beliefs and values?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Mean
Importance	1.77	1.73	1.75	31
Desirability	1.92	1.90	1.91	38
Feasibility	2.77	2.48	2.63	44
			Mn=2.10	Mn=37.7

38. Which of the demographic/social-psychological factors are the ones most often correlated with behavioral change?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Mean
Importance	1.69	1.80	1.75	31
Desirability	1.62	1.80	1.71	30
Feasibility	2.25	2.42	2.34	29
			Mn=1.93	Mn=26.7

39. What are the long term effects of health education as it relates to health-lifestyle for individuals exposed to health education programs in schools and in community settings?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.31	1.28	1.30	8
Desirability	1.46	1.44	1.45	15
Feasibility	2.58	2.48	2.53	38
			Mn=1.76	Mn=20.3

40. What outcomes can we realistically expect school health education to achieve at the various stages of development (K-12)?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.23	1.18	1.21	4
Desirability	1.46	1.18	1.32	6
Feasibility	1.77	1.75	1.76	1
			Mn=1.43	Mn=3.7

41. Does health education work?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.50	1.41	1.46	16
Desirability	1.30	1.41	1.36	8
Feasibility	1.80	1.91	1.86	6
			Mn=1.56	Mn=10.0

42. What is the nature of the relationships among those psychological and environmental variables that influence a given health-related action?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.60	1.54	1.57	23
Desirability	1.70	1.46	1.58	20
Feasibility	2.40	2.58	2.49	34
			Mn=1.88	Mn=25.7

43. What are the psychological characteristics that determine the extent to which an individual is competent to make decisions about a given health-related action?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means)
Importance	1.58	1.69	1.64	26
Desirability	1.58	2.00	1.79	35
Feasibility	2.25	2.70	2.48	33
			Mn=1.97	Mn=31.3

44. What factors are needed in order for people to participate in "health" behaviors?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.64	1.69	1.67	28
Desirability	1.73	1.78	1.76	34
Feasibility	2.18	2.80	2.49	34
			Mn=1.97	Mn=32.0

45. How cost effective are various health education strategies?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.67	1.70	1.69	29
Desirability	1.67	1.70	1.69	29
Feasibility	2.42	2.60	2.50	36
			Mn=1.96	Mn=31.3

46. What are the effects on work days lost, worker satisfaction, job performance, perceived quality of life, etc., of a health education program in the work place?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.38	1.39	1.39	12
Desirability	1.54	1.66	1.60	21
Feasibility	1.92	2.30	2.11	17
			Mn=1.70	Mn=16.7

47. What are the effects of Health Education?

Scale	Round 2 Mean Scores	Round 3 Mean Scores	Means (Combined Rounds)	Rank (Combined Means
Importance	1.22	1.11	1.17	1
Desirability	1.22	1.30	1.26	5
Feasibility	1.89	1.80	1.85	5
			Mn=1.43	Mn=3.7

Table 2
Ten Highest Rated Questions Based
Upon Grand Mean Rating

Rank	Question

1. What are the critical factors which enhance or detract from successful implementation and maintenance of health education programs in schools and do they change over time?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.17	1	
Desirability	1.22	1	1.39
Feasibility	1.78	2	

2. A) What are the effects of health education?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.17	1	
Desirability	1.26	5	1.43
Feasibility	1.85	.5	

B) What outcomes can we realistically expect school health education to achieve at the various stages of development (K-12)?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.21	4	
Desirability	1.32	6	1.43
Feasibility	1.76	1	

4. What are the best ways to convince schools and community leaders of the need for health education?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.26	5	1.47
Desirability	1.22	1	
Feasibility	1.92	8	

5. A) What are the most effective ways to implement health education programs?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.29	6	
Desirability	1.25	4	1.50
Feasibility	1.96	9	

B) How can health education become a more important part of the community and school curriculum?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.31	9	
Desirability	1.40	11	1.50
Feasibility	1.78	2	

7. How can we best measure our successes and failures in regard to the effectiveness of health education methods and programs?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.29	6	
Desirability	1.33	7	1.53
Feasibility	1.97	11	

8. What are the programmatic and organizational variables that influence the implementation and maintenance of health education programs?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.40	13	
Desirability	1.40	11	1.55
Feasibility	1.84	4	

9. Does health education work?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.46	16	
Desirability	1.36	8	1.56
Feasibility	1.86	6	

10. How can the concept of comprehensive school health gain the support needed to adequately implement such programs in the nation's schools?

	Scale Mean	Scale Mean Rank	Grand Mean
Importance	1.19	3	
Desirability	1.23	3	1.58
Feasibility	2.31	26	

Table 3

The Ten Lowest Rated Questions

1. What amount of the various positive health actions is accounted for by health education in schools?

	Mean Rating	Standard Deviation
Importance	2.10	1.28
Desirability	2.00	1.05
Feasibility	3.20	1.23
MN =	2.43	

2. What is the effect of anti-sex education groups on the elimination of sex education in schools?

	Mean Rating	Standard Deviation
Importance	2.54	0.97
Desirability	2.62	0.78
Feasibility	2.15	0.90
MN =	2.44	

3. What are the parameters of health education research?

	Mean Rating	Standard Deviation
Importance	2.45	1.13
Desirability	2.36	1.00
Feasibility	2.55	1.38
MN =	2.45	

4. To what extent do health educators presume to "know what is best or better for health promotion" and then impose the right answers on their students through "slanted," prejudiced, one-sided, biased presentations?

	Mean Rating	Standard Deviation
Importance	2.42	1.15
Desirability	2.42	1.42
Feasibility	2.75	1.29
MN =	2.53	

5. What are the language barriers to communication between school and community health educators?

	Mean Rating	Standard Deviation
Importance	2.54	1.25
Desirability	2.54	1.18
Feasibility	2.54	1.25
MN =	2.54	

6. Can a well-planned, sensitively taught program of sex education be shown to have a decrease in the prevalence of pregnancy among teenage youth?

	Mean Rating	Standard Deviation
Importance	2.31	1.31
Desirability	2.31	1.31
Feasibility	3.15	0.92
MN =	2.59	

7. A) What is the efficacy (payoff) of teaching toward concepts/objectives that we say cannot be evaluated?

	Mean Rating	Standard Deviation
Importance	2.60	1.43
Desirability	2.60	1.27
Feasibility	2.90	1.20
MN =	2.70	

B) What is the "desired" amount of behavioral change as well as attitude change of individuals exposed to school health education programs?

	Mean Rating	Standard Deviation
Importance	2.50	1.18
Desirability	2.50	1.44
Feasibility	3.10	0.99
MN =	2.70	

9. (We know that virtually every educational intervention works somewhere to some degree, and usually the more the better.) How much of each educational intervention is enough to achieve defined (objective) outcomes? OR (What is the threshold level of educational input below which the intended outcomes do not occur?)

	Mean Rating	Standard Deviation
Importance	2.72	1.02
Desirability	2.72	1.02
Feasibility	3.00	0.89
MN =	2.81	

10. What methodology is "best" for health instruction?

	Mean Rating	Standard Deviation
Importance	3.00	1.00
Desirability	3.00	1.05
Feasibility	3.09	1.38
MN =	3.03	

EXHIBIT 1

SCORING CRITERIA

RANKING ON IMPORTANCE

SCORE	RANK	CRITERIA
1	Very Important	A most relevant point First order priority Has direct bearing on major issues Must be resolved, dealt with or treated
2	Important	Is relevant to expanding Health Education and Health Education programs Second order priority Significant impact but not until other items are treated Does not have to be fully resolved
3	Moderately Important	May be relevant to expanding Health Education and Health Education programs Third order priority May have impact May be determining factor to major issue
4	Unimportant	Insignificantly relevant Low priority Has little impact Not a determining factor to major issue
5	No Importance	No priority in Health Education or Health Education programs No relevance No measurable effect Should be dropped as an item to consider

EXHIBIT 2

SCORING CRITERIA

RANKING ON DESIRABILITY

SCORE	RANK	CRITERIA
1	Highly Desirable	Will have a positive effect and little or no negative effect Social benefits will far outweigh social costs Justifiable on its own merit Valued in and of itself
2	Desirable	Will have a positive effect with minimum negative effects Social benefits greater than social costs Justifiable in conjunction with other items Little value in and of itself
3	Neither Desirable nor Undesirable	Will have equal positive and negative effects Social benefits equal social costs May be justified in conjunction with other desirable or highly desirable items No value in and of itself
4	Undesirable	Will have a negative effect with little or no positive effect Social costs greater than social benefits May only be justified in conjunction with a highly desirable item Harmful in and of itself
5	Most Undesirable	Will have major negative effect Social costs far outweigh any social benefit Not justifiable Extremely harmful in and of itself

EXHIBIT 3

SCORING CRITERIA

RANKING ON FEASIBILITY

SCORE	RANK	CRITERIA
1	Definitely Feasible	Can be implemented No research and development work required (necessary technology and research design are presently available) Definitely within available resources No major political roadblocks Will be acceptable to general public
2	Probably Feasible	Some indication this can be implemented Some research and development work required (existing technology and research design need expanded and/or adopted) Available resources would have to be supplemented Some political roadblocks Some indication this may be acceptable to the general public
3	May or May Not Be Feasible	Contradictory evidence this can be implemented Indeterminable research and development effort needed (existing technology and research design may be inadequate) Increase in available resources would be needed Political roadblocks Some indication this may not be acceptable to the general public
4	Probably Unfeasible	Some indication this cannot be implemented Major research and development effort needed (existing technology and research design is inadequate) Large scale increase in available resources would be needed Major political roadblocks Not acceptable to a large proportion of the general public
5	Definitely Unfeasible	Cannot be implemented (unworkable) Basic research needed (no relevant technology or research design exists, basic scientific knowledge lacking Unprecedented allocation of resources would be needed Politically unacceptable Completely unacceptable to the general public